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GLENOID REAMER

FIELD

The present disclosure relates generally to a method for performing shoulder arthroplasty and, more particularly, to a glenoid reamer having a reduced profile for insertion through a small incision site.

BACKGROUND

This section provides background information related to the present disclosure which is not necessarily prior art.

A natural shoulder joint may undergo degenerative changes due to a variety of etiologies. When these degenerative changes become so far advanced and irreversible, it may ultimately become necessary to replace a natural shoulder joint with a prosthetic shoulder joint. When implantation of such a shoulder joint prosthesis becomes necessary, the natural head portion of the humerus may be resected and a cavity may be created in the intramedullary canal of the host humerus for accepting a humeral component. The humeral component may include a head portion used to replace the natural head of the humerus. Once the humeral component has been implanted, the glenoid cavity positioned at the glenoid may also be resurfaced and shaped to accept a glenoid component. The glenoid component generally includes an articulating surface which is engaged by the head portion of the humeral component.

During such shoulder arthroplasty, the glenoid may be difficult to access. In many instances, it may be necessary to create a large incision to allow the instruments, such as a reamer, required for the surgery to contact the glenoid and perform their intended use. Often, many surgeons prefer to make smaller incisions for a minimally invasive procedure because many benefits may be realized such as reduced bleeding, less post-operative pain, shorter recovery time, and smaller scars. Therefore, it is desirable to provide a glenoid reamer having a reduced profile suitable to be inserted through smaller incisions prepared in a patient's shoulder.

SUMMARY

This section provides a general summary of the disclosure, and is not a comprehensive disclosure of its full scope or all of its features.

A bone reamer constructed in accordance to one example of the present disclosure includes a first member having a first elongated hub and a second member having a second elongated hub. The first elongated hub can extend along a first axis and have a pair of elongated cutting arms that are fixed to the first elongated hub. The elongated cutting arms can extend along a second axis that is generally perpendicular relative to the first axis. The first elongated hub can define a track thereon. The second elongated hub can extend along a third axis. The second member can have a second pair of elongated cutting arms that are fixed to the second elongated hub and extend along a fourth axis that is generally perpendicular to the third axis. The second elongated hub can be concentrically mounted for rotatable movement with the first elongated hub. The second member can have a track follower extending thereon and that is configured to slideably advance along the track causing the first and second members to move between a collapsed position and an expanded position.

In the collapsed position, the first and second pair of cutting arms occupy a position where the second and fourth axes are substantially parallel. In the expanded position, the first and

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second pair of cutting arms occupy a position where the second and fourth axes are non-parallel.

According to additional features, the first and second elongated hubs can be cannulated. The second elongated hub can be received by the first elongated hub. The track can define a first track section, a second track section, and a third track section. The third track section can connect the first and second track sections. The third track section can be generally parallel to the first axis. The first and second tracks can define a first and a second hook, respectively. The first and second hooks can be configured to nestingly capture the track follower when the first and second members are in the expanded and collapsed positions, respectively.

In one configuration, the first member can occupy a position proximal relative to the second member in the collapsed position. The first elongated hub can define a relief thereon that is configured to receive the second pair of cutting arms in the expanded position. In another configuration, a biasing member can be disposed between the first and second members. The biasing member can be configured to bias the first and second members toward the collapsed position. Rotation of the reamer during a bone cutting event causes the second member to rotate relative to the first member from the collapsed position to the expanded position while overcoming the bias of the biasing member. The first and second pairs of cutting arms can have cutting teeth extending therefrom.

Further areas of applicability will become apparent from the description provided herein. The description and specific examples in this summary are intended for purposes of illustration only and are not intended to limit the scope of the present disclosure.

DRAWINGS

The drawings described herein are for illustrative purposes only of selected embodiments and not all possible implementations, and are not intended to limit the scope of the present disclosure.

FIG. 1 is an anterior perspective view of a right glenohumeral joint and shown with a reamer constructed in accordance to one example of the present teachings in a collapsed position and inserted through an incision prepared in a patient;

FIG. 2 is an anterior perspective view of the right glenohumeral joint shown in FIG. 1 and illustrated with the reamer in the expanded position for reaming the glenoid cavity;

FIG. 3 is a front perspective view of the reamer shown in FIG. 1 and in the collapsed position;

FIG. 4 is a front perspective view of the reamer of FIG. 3 and shown in the expanded position;

FIG. 5 is an exploded front perspective view of the reamer of FIG. 3;

FIG. 6 is a front perspective view of a reamer constructed in accordance to additional features of the present disclosure and shown in a collapsed position;

FIG. 7 is a front perspective view of the reamer of FIG. 6 and shown in an expanded position;

FIG. 8 is an exploded front perspective view of the reamer of FIG. 6;

FIG. 9 is a distal end view of the reamer of FIG. 6 and shown in the collapsed position;

FIG. 10 is a distal end view of the reamer of FIG. 9 and shown with the arms being rotated during a reaming procedure;

FIG. 11 is a front perspective view of a reamer constructed in accordance to still another example of the present teachings and shown in an expanded position;